

A NEW SPECIES OF THE MAYFLY GENUS *STENONEMA*  
TRAVER FROM EASTERN UNITED STATES  
(EPHEMEROPTERA: HEPTAGENIIDAE)

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*Abstract.*—Nymphal and adult stages of a new species, *Stenonema sinclairi*, from Tennessee are described.

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A new species belonging to the mayfly genus *Stenonema* was found among two separate collections of mayflies from Sequatchie and Marion Counties, Tennessee.

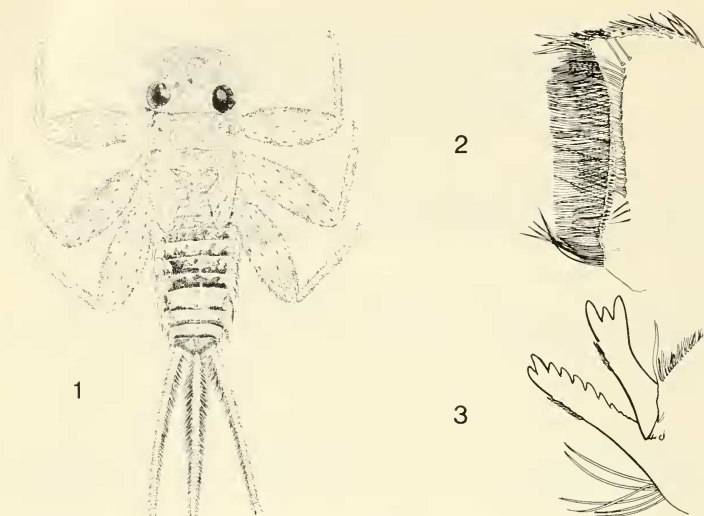
*Stenonema sinclairi* Lewis, NEW SPECIES

Nymph (Fig. 1).—Length of body, 10–12 mm.

*Head:* Brown with minute freckle-like white dots, often coalescing to form small spots anterior to eyes; white band running from anterolateral angle of each compound eye to lateral margin; area posterior to eyes mostly white; each ocellus surrounded by a large white spot. Scapes of antennae dusky, remainder of antennae light tan. Maxillae (Fig. 2) with armature on crowns consisting of 3 pectinate spines and 30–50 setae; ventral surface of galea-laciniae with 30–40 lateral setae. Mandibles (Fig. 3) with 8–10 teeth on inner margin of each outer canine; inner canine of right mandible with 3 sharp teeth on inner margin. Lacinia mobilis lanceolate, undivided at tip.

*Thorax:* Light brown with large white spots near anterior margin of pronotum and in center of mesonotum, lateral margins of pronotum entirely white. Femora white with 2 irregular brown bands across dorsal surface (when an apical brown band is also present the dorsal surface is predominantly brown); tibiae pale with basal and median brown bands present; tarsi brown in middle and pale at both ends; claws not pectinate.

*Abdomen:* Terga 1, 2, 4, 7, and 8 white with brown posterior margins; terga 5 and 9 about equally brown and white; and terga 3, 6, and 10 brown with a few white dots on meson and larger white spots at lateral margins (Fig. 1). Venter entirely pale on segments 1 to 7 except for occasional spec-



Figs. 1-3. *Stenonema sinclairi*, nymph. 1, Dorsal view. 2, Left maxilla, ventral view. 3, Left mandible.

imens with brown shading in sublateral and median areas at posterior margins of more posterior segments; sternum 9 with posterolateral angles brown (Fig. 4). Abdominal segments 3 to 9 produced as posterolateral spines. Gills 1 to 6 truncate at apices, each with brownish-purple tracheae; 7th gill with fringe of hairs, but without tracheae. Caudal filaments yellow tan with circle of strong spines at alternating joints; a row of setae only on mesal margin of each (Fig. 1).

Male imago.—*Length*: Body, 11 to 12 mm; fore wing, 11 mm; tails, 30 mm.

*Head*: Gray-brownish white in frontal portion below eyes; vertex dark brown, ocelli ringed with black at bases; pedicels of antennae tan, each flagellum purple in basal  $\frac{1}{2}$ , becoming white at tip.

*Thorax*: Light brown on pronotum, gradually darkening posteriorly so that mesoscutellum is dark brown; pleura tan with patches of dark brown pigment near base of each leg. Legs yellowish gray; brown median bands on each femur; fore tarsal ratio 3.5. Fore wings hyaline with light brown veins; cross veins about evenly spaced throughout the wing (not crowded in bulla area) (Fig. 5); white stain in costal and subcostal interspaces in stigmatic area. Hind wing hyaline with light brown cross veins.

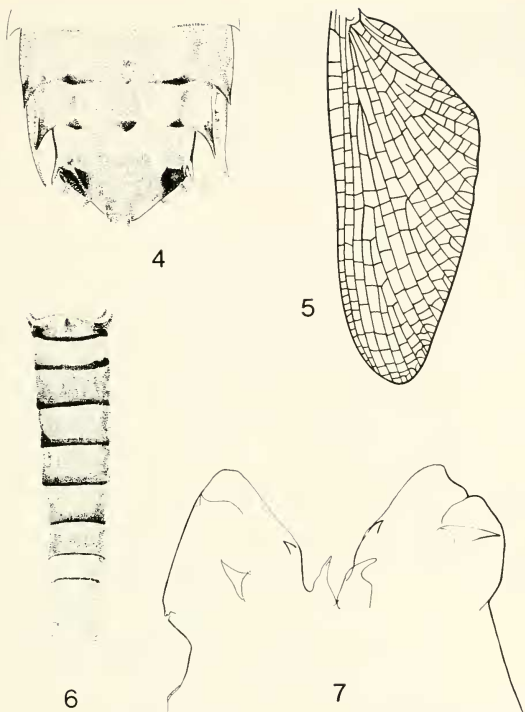


Fig. 4. *Stenonema sinclairi*, nymph, posterior sterna. Figs. 5-7. *Stenonema sinclairi*, male imago. 5, Fore wing. 6, Dorsal view of abdomen. 7, Genitalia.

*Abdomen*: Segments 1 to 8 rusty brown throughout (Fig. 6); terga 9 and 10 yellow brown; posterior margins of terga 1-8 with narrow black bands; no dark spiracular spots. Genitalia (Fig. 7) with large discal spine and small apical spine on each penis lobe; penis lobes not as boot-shaped as in most *Stenonema* species. Caudal filaments tan with reddish-brown joints; covered with short setae and fringed on mesial sides with long setae.

*Holotype*.—♂ imago; Spring Brook of Gladly Fork Creek, Sequatchie County, TENNESSEE 30-IV-76 (Reared 1-V-76); collected by R. Sinclair, Jr. and J. Rossman; deposited at U.S. National Museum of Natural History, Washington, D.C. (USNM Type no. 75942).

*Paratypes*.—♀ imago; same data as Holotype; deposited at National Mu-

seum of Natural History. Four nymphs; Glady Fork Creek, Bledsoe County, TENNESSEE 10-VII-75; collected by R. Sinclair, Jr.; deposited at Florida A&M University Museum, Tallahassee. One ♂ imago, 1 ♂ subimago, and 2 ♀ imagoes; Spring Brook of Glady Fork Creek, Saquatchie County, TENNESSEE 30-IV-76; collected by Ralph Sinclair, Jr. and Joe Rossman; deposited at Florida A&M University Museum.

Additional nymphs of this species were examined from Kellys Creek, Marion County, TENNESSEE (Collected 10-24-78 by Wendell L. Pennington).

Ecology and distribution.—The small streams from which the nymphs were collected flow through an area that was strip-mined many years ago. These soft-water streams are cold and slow-flowing with stream beds composed of smooth stones, cobble, and sand over underlying sandstone bedrock. At the times of collection the water temperature ranged from 13 to 26°C, the dissolved oxygen was between 6.0 and 9.0 ppm, the pH ranged from 5.5 to 7.8, and the alkalinity as CaCO<sub>3</sub> was less than 6 mg/l.

This species has been collected only from the very small tributaries of the Sequatchie River in Tennessee.

Discussion.—*Stenonema sinclairi* is closely related to *S. fuscum* Clemens and *S. pudicum* Hagen. The male imago keys to *S. fuscum* (couplet 24) and the nymph keys to *S. pudicum* (couplet 24) in Lewis (1974).

The fore tarsal ratio (3.5) of the male will separate *Stenonema sinclairi* from all other *Stenonema* except *S. vicarium* Walker. The characteristic penis lobes which are only slightly boot-shaped and the large discal spines distinguish this species from all other members of the *vicarium* complex (including *S. fuscum* and *S. pudicum*). Both males and females lack the crowded cross veins in the bulla region and the dark hind wing margins so characteristic of *S. pudicum* and *S. carlsoni* Lewis.

The nymph is separated from *S. pudicum* by having fewer than five pectinate spines on the crown of each maxilla compared to five to eight in *S. pudicum*. The absence of dark bands on the sterna of segments 4 to 8 also appears to be diagnostic. The nymph of *S. sinclairi* differs from *S. fuscum* in lacking dark posterior margins on sterna 2 to 8.

Etymology.—The name is in honor of Ralph Sinclair, Jr., who collected and reared the species during a water pollution study in Southeast Tennessee, and sent the type-material for examination.

#### ACKNOWLEDGMENTS

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## LITERATURE CITED

- Lewis, P. A. 1974. Taxonomy and Ecology of *Stenonema* Mayflies (Heptageniidae: Ephemeroptera). United States Environmental Protection Agency, Environmental Monitoring Series, EPA-670/4-74-006, 81 p.

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81(2), 1979, p. 325

## NOTE

The Gender of *Nosopon* Hopkins (Mallophaga)

The genus *Nosopon* was erected by Hopkins in 1950 (Ann. Mag. Nat. Hist. (12) 3:239) with the sole species indicated as *Menopon* "*fulvofasciatum* var." *minor* Piaget. No new combination was made nor was a statement made regarding either gender or derivation of the generic name. A few authors have placed additional species in the genus. The latest of these is Price (1976. J. Kans. Entomol. Soc. 49:23-26) who describes a new species and includes four other species in his key to the genus; viz., *N. australiensis* Price, *N. casteli*, *N. chanabensis*, *N. clayae*, and *N. lucidum*, the latter four without citation of authors' names.

It seems evident that the generic name is analogous to *Menopon*, inasmuch as no other reasonable derivation for it can be found in lexicons. Erichson (*In* Agassiz. 1846. Nomenclator Zoologicus. Fasc. 9 & 10. Epizoa:1) derived *Menopon* from Greek *menos* 'force, strength' + *ōps* 'face, aspect.' The name therefore has a suffix or termination *-on* appended to it. This changes its gender from that of *ops* to neuter (Internatl. Code of Zool. Nomencl., Art. 30.a.i.3). *Nosopon* may be derived from Greek *nosos* 'disease, distress' + *ōps* + *on*. Inasmuch as *-on*, as used in these names, is generally associated with neuter gender, both *Menopon* and *Nosopon* should be considered of neuter gender, as the former generally has been. Two of the species of *Nosopon* bearing adjectival species epithets should be in the neuter form; viz., *N. chanabense* and *N. australiense*. *Nosopon lucidum* is correctly neuter, and the other two epithets are in the genitive case. The neuter form of the epithet *minor*, incidentally, is *minus*.

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